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A THIRD SPECIES OF THE HISPANIOLAN  
*SHREVEI* GROUP OF *SPHAERODACTYLUS*  
(SAURIA, GEKKONIDAE)

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The West Indian island of Hispaniola has revealed an increasing and intriguing number of geckos of the genus *Sphaerodactylus*. Of these small geckos, one group is composed of two known species: *shrevei* Lazell 1961 and *rhabdotus* Schwartz 1970. The former species is known from only one specimen from the Presqu'île du Nord Ouest in extreme north-western Haiti; the holotype has apparently been lost. The second species was named from a series of 15 specimens from near La Florida, República Dominicana. *S. shrevei* and *S. rhabdotus* together form a distinctive pair of Hispaniolan (and indeed Antillean) sphaerodactyls which differ in several characteristics from all other Hispaniolan species. The distributions of these two species are very poorly known: *shrevei* is a north island (*sensu* Williams, 1961) species which occurs in the remote northwest of Haiti, whereas *rhabdotus* is known only from the type-locality on the northern edge of the south island, bordering the Valle de Neiba which, with the Cul de Sac Plain in Haiti is the paleostrait between the Hispaniolan north and south islands. The localities for the two species are separated by about 250 kilometers, but both species occur in similar xeric situations (Schwartz, 1970).

Under National Science Foundation grant B-023603, I visited the type-locality of *S. rhabdotus* in the autumn of 1971, in the company of Danny C. Fowler, Bruce R. Sheplan, and Jeffrey R. Buffett. We were unsuccessful in securing more specimens of *S. rhabdotus*, since the palm-thatch pile wherein the sole specimens of the species had been collected in 1969

had long ago disintegrated, and those very special circumstances which allowed the collection of the species at that locality no longer exist.

While in the Barahona area in the República Dominicana, we emphasized visiting areas which had previously been bypassed; the Valle de Neiba and its margins in this region have been shown to be especially productive as far as new taxa of both amphibians and reptiles are concerned. It seemed quite likely that *S. rhabdotus* has a much broader distribution in the Valle de Neiba-Llanos de Azua, and it was our hope that we would encounter another locality for the species. On 3 September 1971 we stopped at the village of El Iguito northeast of Fondo Negro in the extreme eastern Valle de Neiba. The region is excessively arid desert, with cacti and *Acacia* forming a relatively sparse cover over the rocky to sandy soils. Adjacent to the highway was an unoccupied and roofless house, the interior floor filled to a depth of about 1 meter with the apparently untouched and very dry roof thatch and boards. Overturning the mass of thatch and boards revealed *Aristelliger lar* Cope and four specimens of a new *Sphaerodactylus*, which, in allusion to the series of white "stars" in its dorsolateral brown stripes may be called

***Sphaerodactylus leucaster*, new species**

*Holotype*: United States National Museum 189234, an adult male, from El Iguito, 1.6 mi. (2.6 km) NE Fondo Negro, Barahona Province, República Dominicana, on 3 September 1971, one of a series collected by Danny C. Fowler and Bruce R. Sheplan. Original number ASFS (Albert Schwartz Field Series) V30523.

*Paratypes*: ASFS V30524-26, same data as holotype.

*Distribution*: Known only from the type-locality.

*Diagnosis*: A species of *Sphaerodactylus* characterized by moderate size (males to 26 mm, female to 30 mm snout-vent length); throat, chest, and ventral scales smooth; dorsal scales keeled and only slightly imbricate, 23 to 26 between axilla and groin, and without a mid-dorsal zone of granules or smaller scales; ventral scales cycloid and sub-imbricate, 29 to 32 between axilla and groin; scales around midbody between 35 and 41; supralabials 4 to beneath center of eye; internasal scales 2; escutcheon in males moderate (5 to 7 scales) and broad (up to 24 scales); dorsal scales with from 3 to 8 "hair"-bearing organs (usually 2, occasionally 1, short "hairs" per organ) along the free posterior margin of scales; no sexual dichromatism, dorsal pattern of 2 dark



FIG. 1. *Sphaerodactylus leucaster* (United States National Museum 189234, holotype), dorsal view.

brown dorsolateral and 2 broken ventrolateral stripes on a lavender ground, the dorsolateral stripes with from 4 to 7 discrete white spots per stripe, males with a median dark brown nuchal line (Fig. 1), female with a dark brown cephalic-nuchal Y; heads and throats bright orange and tails yellow in males; a vertically elliptical pupil; and a distinctly convex snout.

*Description of the holotype:* An adult male with a snout-vent length of 26 mm, tail 24 mm (almost completely regenerated); dorsal scales keeled, only slightly imbricate, without a middorsal band of granules or of small and large irregularly placed scales (although there are a few scattered smaller scales above and just posterior to the axilla), 23 between axilla and groin; throat, chest, and ventral scales smooth and imbricating, 31 between axilla and groin; scales around body at mid-body 39; internasals 2; fourth toe lamellae 11; escutcheon moderately well developed, 5 scales long and 8 scales broad, not extending to level of knee; 4 enlarged supralabials on each side to center of eye; snout, head, and dorsal neck scales small and granular, grading fairly abruptly above the axilla into the large keeled dorsal scales; throat scales granular, grading gradually into the large smooth ventral scales posteriorly, and anteriorly into somewhat enlarged scales bordering the sublabials; superior caudals small and keeled, subcaudals smooth.

*Coloration of holotype:* Dorsum (in life) lavender, head and throat bright orange; a pair of dorsolateral dark brown lines beginning behind the eye and extending to the regenerated portion of the tail, with a series of white starlike spots along their lengths; a median brown nuchal line; a pair of dark brown ventrolateral lines, one on each side, from just above the forelimb insertion onto the base of the tail; tail bright yellow with vague dark brownish dorsolateral stripes which appear to be the continuations (in a diluted form) of the dorsolateral brown stripes onto the regenerated portion of the tail; venter pink; iris greenish gold.

*Variation:* Data for four *S. leucaster* (the holotype, two male and one female paratypes) are: dorsal scales between axilla and groin 23–26; ventral scales between axilla and groin 29–32; scales around body at midbody 35–41; supralabials to center of eye 4; internasals 2; fourth toe lamella 8–11; escutcheon 5–7 × 8–24; largest males (holotype, ASFS V30524) with snout–vent lengths of 26 mm; female (ASFS V30526) with snout–vent length of 30 mm.

The two paratypic males are colored and patterned like the holotype; the ventrolateral dark stripe may be somewhat fragmented but it is always apparent. The median nuchal line has an indicated branching leading to the ocular region (thereby giving a vague Y) in one paratype (ASFS V30525). The number of white starlike punctae in each dorsolateral dark line varies between 4 and 7 and these spots are a bold and conspicuous feature in life. The greater length of the escutcheon in the two paratypic males in contrast to that in the holotype is due to the extension of the escutcheon along the ventral surface of the thigh; such an extension is not clearly defined in the holotype.

The single female was patterned much like the males in life, but there is a well-defined dark brown occipital Y-shaped figure which includes (as the stem) the median brown nuchal line. In the female, the venter is pink as in males, but the throat and head are not orange; the upper surface of the head is lavender with some random dark brown snout stippling, and the throat is white with vague brown scribbling.

The scale organs are "hair"-bearing, with from 3 to 8 organs along the free posterior margins of each dorsal scale. Counts of organs on five scales are 3, 5, 6, 6, and 8. Usually there are two "hairs" per organ, but occasional organs have only one "hair."

*Comparisons:* *S. leucaster* differs from both *S. shrevei* and *S. rhabdotus* in dorsal pattern. Although *rhabdotus* is longitudinally lined dorsally (see Schwartz, 1970; fig. 1), the species lacks white spots in the dorsolateral lines. Additionally, the ventrolateral dark brown lines are absent or only at best very tentatively indicated. The occipital Y or the median nuchal dark line are consistent features in *rhabdotus*, with the former condition the more prevalent. Male *rhabdotus* have the head and throat yellow rather than bright orange as in *leucaster*. The iris is greenish gold in *leucaster* and brown to gray in *rhabdotus*. The two species are comparable in all scale counts.

Lazell (1961) and Schwartz (1970) commented on the pattern and



coloration of the now-lost holotype of *S. shrevei*. This species is not longitudinally lineate. All three taxa included in the *shrevei* group share a community of scale characters (4 supralabials to eye center, 2 internasals—although the only known *shrevei* has 1 internasal) as well as habitus (convex snouts) and structural features (slightly imbricate, subimbricate, or non-imbricate dorsal scales). At least *leucaster* and *rhabdotus* have vertically elliptical pupils; the pupil shape is not recorded for *shrevei*. One feature in which *shrevei* differs from both *rhabdotus* and *leucaster* is that the former has a middorsal zone of irregularly sized small and large scales which is absent (or at best only indicated by a few smaller dorsal scales in the midline above the axilla) in the latter pair.

*Remarks:* Since it is obvious that *S. leucaster* and *S. rhabdotus* are more closely related to each other than either is to *S. shrevei*, the matter of relationships between these two southern populations is problematical. The two localities (La Florida, El Iquito) from which each is known are separated by about 62 kilometers airline, whereas the distance between the two localities for *rhabdotus* and *shrevei* (La Florida, Môle St. Nicholas) are some 250 kilometers apart. It would seem reasonable to assume, considering the lack of scutellar differences between *rhabdotus* and *leucaster*, that these taxa are subspecifically related.

I have been swayed in my naming *leucaster* as a full species by the fact that, despite the proximity of the *rhabdotus* and *leucaster* localities, they lie on two portions of Hispaniola which have had separate histories. Hispaniola, as is by now well known, was previously composed of two islands, separated by a strait, which is now the Cul de Sac-Valle de Neiba plain, the hot and xeric lowlands, in places below sea level, which mark even today the boundary between the two old islands. The herpetofaunas of these two palaeoislands differ strikingly in many ways, most notably in species-composition. The only *rhabdotus* locality lies on or near the old northern shore of the south island (at the foot of the Sierra de Baoruco) whereas the *leucaster* locality lies near the southern shore of the north island (near the foothills of the Sierra de Neiba-Sierra Martín García).

It seems likely that these two populations represent two stocks, one derived from the other, which occupied lowland dry situations along the coasts on the north and south islands. One might well expect that, of the three *shrevei* group species, *rhabdotus* and *leucaster* would be closer than either is to *shrevei*, on the grounds of the history of this region in comparison with the history of the remainder of the north island (at whose northwestern extremity *S. shrevei* occurs).

There is at present no evidence that either *rhabdotus* or *leucaster* occurs throughout the hot and dry lowlands of the Valle de Neiba which lies between their two known localities. This intervening region harbors the small *S. brevirostratus* Shreve and an as yet unnamed even smaller species of *Sphaerodactylus*. *S. difficilis* Barbour occurs peripheral to this region but is unknown from the xeric lowlands themselves.

Considering all of the above facts, historical, ecological, and geographic, I have chosen what I consider a conservative course in naming *leucaster* as a full species. Only more intensive collecting in the region between the *leucaster* and *rhabdotus* localities may reveal the relationships of these two populations. One major drawback is that in neither case do we as yet know the natural habitat of either species; both have been secured only in man-disturbed and highly specialized situations—basically, shaded retreats in xeric regions. Intensive collecting with native assistance in a mesic *Musa* grove with much ground litter adjacent to El Iguito revealed no additional *S. leucaster*. Only *S. brevisrostratus* was secured in this very mesic and extremely shaded artificial situation. I have little doubt that both *S. rhabdotus* and *S. leucaster* are typically desert-dwelling geckos, but encountering specimens in open and undisturbed desert may well prove an almost impossible task. It is remarkable that, despite considerable collecting carried on within the Valle de Neiba (and in the confluent Cul de Sac Plain in Haiti) no member of this group of *Sphaerodactylus* has been taken. The precise habitat requirements for members of the *S. shrevei* group members in natural situations remain to be determined.

The illustration is from the competent pen of David C. Leber to whom I am very grateful.

## LITERATURE CITED

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